

SILICON CARBIDE SUBLIMATION SYSTEMS AND ASSOCIATED
METHODS

ABSTRACT OF THE INVENTION

Methods of growing silicon carbide are provided in which an electric arc is
5 used to sublime a silicon carbide source material. In these embodiments, a silicon
carbide seed crystal is introduced into a sublimation system, along with first and
second electrodes that are separated by a gap. A power supply is coupled to at
least one of the electrodes and used to create an electric arc across the gap between
the two electrodes. This electric arc is used to sublime at least a portion of a
10 silicon carbide source material. The vaporized silicon carbide material may then
be encouraged to condense onto a seed material to produce monocrystalline or
polycrystalline silicon carbide. In embodiments of the present invention, at least
one of the electrodes is comprised of silicon carbide and serves as the silicon
carbide source material.

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